UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/887,015	06/25/2001	Yasukazu Hayashi	109920	6678

25944 7590 10/14/2003

OLIFF & BERRIDGE, PLC
P.O. BOX 19928
ALEXANDRIA, VA 22320

EXAMINER	
AGUIRRECHEA, JAYDI A	
ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 10/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/887,015	HAYASHI, YASUKAZU	
	Examiner	Art Unit	
	Jaydi A. Aguirrechea	2834	

-- The MAILING DATE of this communication app ars on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 July 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 2* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-2* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ellzey, Jr, (US 5,541,463) in view of Applicant's admitted Prior Art (AAPA).

Ellzey, Jr. discloses a reluctance type resolver (figures 7-9,12) comprising:

a stator (22d), constructed from a magnetic material, having: a plurality of excitation teeth (132d), each of which is wound by an excitation winding (140d),

a rotor (16b) having magnetic salient sections (52b,54b) that are placed to oppose the excitation teeth (132d), and

a detector (222) for detecting the position of the rotor (16b); wherein the excitation winding (140d) is wound on each excitation teeth (132d) so that the magnetic fluxes through all excitation teeth (132d) have the same direction (refer to figure 9 and column 6, lines 6-11), and

the stator (22d) includes bypass magnetic path teeth (130d) passing a magnetic flux having a direction opposite to the direction of the excitation teeth (132d), wherein the bypass magnetic path teeth (130d) are not wound by the excitation winding (140d).

However, Ellzey, Jr. does not disclose that the detector for detecting the position of the rotor detects a current or voltage of the excitation winding which changes with different phase in response to motion of the rotor. AAPA discloses that the detector for detecting the position of the rotor detects a current or voltage of the excitation winding which changes with different phase in

response to motion of the rotor (page 3, lines 2-5) for the purpose of detecting current flowing through each pair of excitation windings as a voltage signal.

It would have been obvious at the time the invention was made to modify the machine of Ellzey, Jr. and provide it with the detecting means disclosed by AAPA for the purpose of detecting the current flowing through each pair of excitation windings as a voltage signal.

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kolomeitsev (US 5,777,416) in view of AAPA.

Kolomeitsev discloses a reluctance type resolver, comprising:

a stator (12), constructed from a magnetic material, having a plurality of excitation teeth (16), each of which is wound by an excitation winding (24a1,24a2),

a rotor (14) having magnetic salient sections (20) that are placed to oppose the excitation teeth (16), and

a detector for detecting the position of the rotor (14), wherein

each of the excitation windings (24a1, 24a2) is wound on each of the excitation teeth (16) for a pair of adjacent excitation teeth (16 with the windings 24a1,24a2) such that the magnetic flux (figure 1) through each of the paired excitation teeth (16) has directions opposite to each other, and the excitation windings (24a1,24a2) for each pair of adjacent excitation teeth (16) are connected in series;

excitation teeth (16) are provided on the stator (12) to that the pitch of each excitation tooth (16) for each pair of adjacent excitation teeth (16) equals an integral multiple of the pitch of the magnetic salient sections (20) of the rotor (14), and

both excitation teeth (16) in each pair of excitation teeth (16) have the same phase for magnetic resistance change with respect to the motion of the rotor (14).

However, Kolomeitsev does not disclose that the detector detects a current or voltage of the excitation winding which changes with different phase in response to the motion of the rotor.

AAPA discloses that the detector for detecting the position of the rotor detects a current or voltage of the excitation winding which changes with different phase in response to motion of the rotor for the purpose of detecting the current flowing through each pair of excitation windings as a voltage signal. It would have been obvious at the time the invention was made to modify the machine of Kolomeitsev and provide it with the detecting means disclosed by AAPA for the purpose of detecting the current flowing through each pair of excitation windings as a voltage signal.

Response to Arguments

4. Applicant's arguments filed on July 11, 2003 have been fully considered but they are not persuasive.

5. In response to applicant's argument that it would have not been obvious to combine Ellzey and the AAPA, it is the Examiner's position that the applicant admits the detection means used in the invention is a conventional position detection apparatus (page 16, figure 4). On the other hand, Kolomeitsev (Column 6, lines 15-20) discloses that the detection of motor position using current or voltage signals are basic techniques and well known in the art. Therefore, it would have been obvious to use the detection means disclosed by AAPA, in order to eliminate extra components, such as the Hall Effect sensor and the rotor winding that might have to be replaced later on.

6. The Examiner disagrees with applicant's argument that Kolomeitsev does not teach the pitch of the stator equals an integer multiple of the pitch of the magnetic salient section of the rotor. In figure 1, Kolomeitsev teaches the pitch of the stator equal to an integer multiple of the pitch of the magnetic salient section of the rotor, where the integer is 1.

7. The Examiner disagrees with applicant's argument that Kolomeitsev does not teach an identical excitation signal to the windings. The AC component of the current flowing in the windings is the same for each of the winding.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jaydi A. Aguirrechea whose telephone number is 703-305-2277. The examiner can normally be reached on M-Th 9-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 703-308-1371. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JAA
10/7/03

Nicholas Ponomarenko
Primary Examiner
Technology Center 2800